

May 4, 2016

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica St. Louis  
13715 Rider Trail North  
Earth City, MO 63045  
Tel: (314)298-8566

TestAmerica Job ID: 160-16369-2

TestAmerica Sample Delivery Group: SL2125A  
Client Project/Site: F16-018 - Additional Metals  
Revision: 1

For:

CH2M Hill Plateau Remediation Company  
PO BOX 1600, MS H8-41  
Richland, Washington 99352

Attn: Mr. Scot Fitzgerald



Authorized for release by:  
5/4/2016 1:56:41 PM

Jayna Awalt, Project Manager II  
(314)298-8566

[jayna.awalt@testamericainc.com](mailto:jayna.awalt@testamericainc.com)

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



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May 4, 2016

## Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

**Job ID: 160-16369-2**

**Laboratory: TestAmerica St. Louis**

### Narrative

#### CASE NARRATIVE

**Rev. 1 - Due to limitations of the LIMS system, newly requested analyses could not be added to the original report. This SDG is now appended with an "A".**

CH2MHill Plateau Remediation Company  
P.O. Box 1600  
Richland, Washington 99352  
April 13, 2016  
Attention: Scot Fitzgerald

SDG	: SL2125A
Number of Samples	: 1 sample
Sample Matrix	: Other Solid
Data Deliverable	: Summary
Date SDG Closed	: March 4, 2016

#### II. Introduction

On March 4, the sample was received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and receipt checklists for documentation of any variations on receipt conditions and temperature. Upon receipt, samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F16-018

**The project originally requested chromium, lead, uranium, vanadium and zinc by 6020 for this sample. The project has also determined the need for arsenic, cadmium, selenium, barium and silver be added by 6020 and mercury (within 2x hold) by 7471. Per SIR16-305 request, these additional analytes have been reported.**

#### III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with an LCS/LCS duplicate.

Note: For Metals analyses, per standard practice, all 6020 water and soil samples are initially prepared at 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate flagging unless otherwise noted in the case narrative.

For solid matrices, all Metals analyses (including Hg) use a Standard Reference Material for the Laboratory Control Sample (LCS). Certificate for this source material may be obtained from TASL.

For Anion analysis, samples have been started at a 2x dilution per CHPRC direction. The samples are flagged accordingly with a "D" flag if sample concentration is above the MDL/RL. Non-conformance will be included in the below section only if dilution is greater than 2x.

For WTPH methods, the lab utilizes method 8015B. Per CHPRC direction, the method name in the electronic data has been modified to read WTPH in the place of 8015B.

Per CHPRC direction (June 2014), Boron will be reported for Metals using method 6010. Boron will no longer be reported by method

## Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

## Job ID: 160-16369-2 (Continued)

## Laboratory: TestAmerica St. Louis (Continued)

6020.

Per CHPRC direction, due to the short hold times for Nitrate, Nitrite and Phosphate by IC (48 hours) as well as pH analysis (24 hours), a SIR request is not needed when samples are run outside 1x hold but within 2x hold. A narrative comment will be included below if a sample is run outside the lab-specified hold time for waters.

For extractable and volatile organic analyses, several analytes are considered poor performers and will not meet CHPRC QC limits. Per CHPRC direction, the lab's statistical limits have been reported. Excursions outside these statistical limits will include a non-conformance in the sections below.

## IV. Definitions

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** - For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** - For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** - For organic analyses, the sample is estimated and less than the RL.
- **C** - For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** - For all analyses, the sample result was obtained from the analysis of a dilution. For Metals analyses, per standard practice, all solid samples are initially prepared at a 2x dilution. This standard dilution does not affect reporting limits as MDL studies are also prepared in the same manner. These dilutions do not necessitate qualification unless otherwise noted in the case narrative.
- **N** - For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** - For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.
- **O** - For all analyses, the LCS (LCSD) recoveries are outside QC limits.
- **M** - For inorganic analyses, the precision was outside control limits.
- **P** - For organic analyses (PCB/Pests only), the aroclor target analyte has greater than 25% difference for detected concentrations between the two GC columns.

ICPMS Metals

## Batch: 245628

Per client request, additional analytes were added to job 160-16369 after original analysis. The MS/MSD was analyzed on a different job within the original prep batch. As a result, the MS/MSD was not analyzed for Arsenic, Cadmium, Selenium, Barium and Silver. B34PN5 (160-16369-1) and (160-16369-B-1-C SD) Method performance is demonstrated by acceptable LCS recovery.

Mercury

## Batch: 245330

The following samples were logged in outside of 1x hold time but prepared within 2x hold per SIR16-305. B34PN5 (160-16369-1).

We certify that this data package is in compliance with the SOW, both technically and for completeness, including a full description of,

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## Case Narrative

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

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### Job ID: 160-16369-2 (Continued)

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#### Laboratory: TestAmerica St. Louis (Continued)

explanation of, and corrective actions for, any and all deviations, from either the analyses requested or the case narrative requested. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager or designee and the laboratory's client services representative as verified by their signature on this report.

Reviewed and approved:

Jayna Awalt  
St. Louis Project Manager

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## Problem and Discrepancy Report

TASL

SDG SL2125

05/02/16

---

**The data package has the following issues:**

A SIR was issued for this data package requesting additional analysis for sample B34PN5. TASL reported the additional analysis in the SL2125 REV. 1 data package but did not report the original requested analysis requested on COC F16-018-001. TASL needs to report all requested analysis in one complete data package.

**Resolution:** *Provide appropriate correction.*

**Lab Response:** Due to LIMS limitations, we are unable to add new requested analyses to an already reported and invoiced SDG. A new "A" appended SDG will be submitted.

Please correct the issue and resubmit the hardcopy data package.

Provide a resolution to each issue noted on the report

Page 1 of 1

**SAMPLE ISSUE RESOLUTION**

**SIR NUM** SIR16-305  
**REV NUM** 0  
**DATE INITIATED** 4/6/2016

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** F16-018  
**OPERABLE UNIT(S)** 200-PW-1  
**PROJECT(S)** CPP 200 Area  
**SAMPLE EVENT TITLE(S)** Pump & Treat Waste  
**LABORATORY** TestAmerica St. Louis

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 1  
**SAMPLE NUMBERS** B34PN5  
**SAMPLE MATRIX** OTHER SOLID  
**COLLECTION DATE** 3/2/2016 - 3/2/2016  
**SDG NUM** SL2125

**ISSUE BACKGROUND**

**CLASS** General Laboratory Direction  
**TYPE** Addition of Analysis

**DESCRIPTION** The project originally requested Chromium, Lead, Uranium, Vanadium and Zinc by 6020 for this samples. At this time the project has also determined a need for Arsenic, Cadmium, Selenium, Barium and Silver to be reported on these samples. In addition the project would like to add Mercury analysis to the sample.

**DISPOSITION**

**DESCRIPTION** Add Arsenic, Cadmium, Selenium, Barium and Silver to the sample listed above or, if the data are already available, re-report with these constituents added. Add Mercury analysis

**JUSTIFICATION** Final Disposition: TASL will run the additional Metals including Mercury (within 2x hold).

SUBMITTED BY: Sarah Nagel DATE: 04/07/2016  
 ACCEPTED BY: Jayna Awalt DATE: 04/07/2016

## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 160-16369-1

SDG Number: SL2125

Login Number: 16369

List Source: TestAmerica St. Louis

List Number: 1

Creator: Clarke, Jill C

Question	Answer	Comment
Radioactivity wasn't checked or is <= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.1°
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F16-018-001		PAGE 1 OF 2				
COLLECTOR	J.R. Aguilar/CHPRC	SL2125	COMPANY CONTACT	SUMNER, LC	TELEPHONE NO.	376-3922	PROJECT COORDINATOR	SUMNER, LC	PRICE CODE	9H	DATA	TURNAROUND
SAMPLING LOCATION	PW1 GAC Container #AE-1212		PROJECT DESIGNATION	200-PW-1 GAC Sampling			SAF NO.	F16-018	AIR QUALITY	<input type="checkbox"/>		30 Days / 30 Days
ICE CHEST NO.	GWS-232		FIELD LOGBOOK NO.	14NF-P-491-15/12	ACTUAL SAMPLE DEPTH	N/A	COA	302853	METHOD OF SHIPMENT	FEDERAL EXPRESS		ORIGINAL
SHIPPED TO	TestAmerica St. Louis		OFFSITE PROPERTY NO.				BILL OF LADING/AIR BILL NO. 7757 8882 7595					
MATRIX*	A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool <=6C	Cool ~4C	None						
		*Contains Radioactive Material at concentrations that are not be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.	HOLDING TIME	14 Days	14/40 Days	6 Months						
			TYPE OF CONTAINER	G	aG	G/P						
			NO. OF CONTAINER(S)	1	1	1						
			VOLUME	40mL	60mL	60mL						
			SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS						
SPECIAL HANDLING AND/OR STORAGE												
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
834PN5	OTHER SOLID	03-02-16	1400									

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
J.R. Aguilar/CHPRC	MAR 02 2016 1420	SSU #1	MAR 02 2016 1420		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
SSU #1	MAR 03 2016 0920	L.D. Wall	MAR 03 2016 0920		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
CHPRC	MAR 03 2016 1400	FEDEX	MAR 03 2016 1400		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
FEDEX	MAR 03 2016 1400	JILL CLARKE	MAR 03 2016 1400		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY	RECEIVED BY	TITLE		DATE/TIME	
SECTION		DISPOSED BY		DATE/TIME	
ORIGINAL SAMPLE	DISPOSAL METHOD				
DISPOSITION					
PRINTED ON 3/1/2016		FSR ID = FSR25956		TRVL NUM = TRVL-16-080	
				A-6003-618 (REV 2)	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F16-018-001	PAGE 2 OF 2
COLLECTOR J.R. Aguilar/CHPRC	COMPANY CONTACT SUMNER, LC	TELEPHONE NO. 376-3922	PROJECT COORDINATOR SUMNER, LC	PRICE CODE	9H
SAMPLING LOCATION PW1 GAC Container #AE-1212	PROJECT DESIGNATION 200-PW-1 GAC Sampling		SAF NO. F16-018	AIR QUALITY	<input type="checkbox"/>
ICE CHEST NO. 605-232	FIELD LOGBOOK NO. HNF-N-491-15/12	ACTUAL SAMPLE DEPTH 21 ft	COA 302853	METHOD OF SHIPMENT FEDERAL EXPRESS	ORIGINAL
SHIPPED TO TestAmerica St. Louis	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. 7757 8882 7595			

## SPECIAL INSTRUCTIONS

(1) 8260\_VOA\_GCMS: COMMON {1,1,1-Trichloroethane, 1,1-Dichloroethane, 2-Butanone, 4-Methyl-2-pentanone, Benzene, Carbon tetrachloride, Chlorobenzene, Chloroform, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Xylenes (total)}; 8260\_VOA\_GCMS: COMMON (Add-on) {1,1,1,2-Tetrachloroethane, trans-1,2-Dichloroethylene}; 8260\_VOA\_GCMS: CH 01 {Bromodichloromethane, Chloromethane};  
 (2) 8270\_SVOA\_GCMS: COMMON {1,4-Dichlorobenzene, 2-Methylphenol (cresol, o-)}; 8270\_SVOA\_GCMS: CH 01 {1,2-Dichlorobenzene, Bis(2-chloroethyl) ether, Hexachlorobutadiene, Hexachloroethane}; 8270\_SVOA\_GCMS: COMMON (Add-on) {3+4 Methylphenol (cresol, m+p)};  
 (3) 6020\_METALS\_ICPMS: COMMON {Chromium, Lead}; 6020\_METALS\_ICPMS: COMMON (Add-on) {Uranium, Vanadium, Zinc};

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## FedEx ® Tracking

775788827595

Ship date

Thu 3/03/2016

RICHLAND, WA US

Actual delivery:

Fri 3/04/2016 10:07 am

EARTH CITY, MO US

**Delivered**

Signed for by: B.DANIEL

## Travel History

Date/Time	Activity	Location
3/04/2016 - Friday		
10:07 am	Delivered	EARTH CITY, MO
7:25 am	On FedEx vehicle for delivery	EARTH CITY, MO
7:16 am	At local FedEx facility	EARTH CITY, MO
5:23 am	At destination sort facility	BERKELEY, MO
4:36 am	Departed FedEx location	MEMPHIS, TN
12:09 am	Arrived at FedEx location	MEMPHIS, TN
3/03/2016 - Thursday		
5:08 pm	Left FedEx origin facility	PASCO, WA
3:22 pm	Picked up	PASCO, WA
11:47 am	Shipment information sent to FedEx	

## Shipment Facts

Tracking number	775788827595	Service	FedEx Priority Overnight
Weight	17 lbs / 7.71 kgs	Delivered To	Shipping/Receiving
Total pieces	1	Total shipment weight	17 lbs / 7.71 kgs
Terms	Recipient	Shipper reference	GWS-232
Packaging	Your Packaging	Special handling section	Deliver Weekday Additional Handling Surcharge

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## Definitions/Glossary

Client: CH2M Hill Plateau Remediation Company  
 Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
 SDG: SL2125A

## Qualifiers

## Metals

Qualifier	Qualifier Description
U	Analyzed for but not detected.
B	Estimated result. Result is less than the RL, but greater than MDL

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Method Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL
7471B	Mercury (CVAA)	SW846	TAL SL

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

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## Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
160-16369-1	B34PN5	Other Solid Sample	03/02/16 14:00	03/04/16 10:15

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TestAmerica St. Louis

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## Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

### Method: 6020A - Metals (ICP/MS)

Client Sample ID: B34PN5

Date Collected: 03/02/16 14:00

Date Received: 03/04/16 10:15

Lab Sample ID: 160-16369-1

Matrix: Other Solid Sample

Percent Solids: 99.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.1		0.93	0.24	mg/Kg	☼	03/16/16 09:20	04/12/16 23:53	2
Barium	53.3		1.9	0.087	mg/Kg	☼	03/16/16 09:20	04/12/16 23:53	2
Cadmium	0.015	U	0.046	0.015	mg/Kg	☼	03/16/16 09:20	04/12/16 23:53	2
Selenium	0.71		0.46	0.15	mg/Kg	☼	03/16/16 09:20	04/12/16 23:53	2
Silver	0.051	B	0.19	0.022	mg/Kg	☼	03/16/16 09:20	04/12/16 23:53	2

### Method: 7471B - Mercury (CVAA)

Client Sample ID: B34PN5

Date Collected: 03/02/16 14:00

Date Received: 03/04/16 10:15

Lab Sample ID: 160-16369-1

Matrix: Other Solid Sample

Percent Solids: 99.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.010	U	0.030	0.010	mg/Kg	☼	04/11/16 09:20	04/11/16 15:58	1

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## QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

## Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-244909/1-A

Matrix: Solid

Analysis Batch: 245628

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 244909

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.24	U	0.91	0.24	mg/Kg		03/16/16 09:20	04/12/16 23:39	2
Barium	0.085	U	1.8	0.085	mg/Kg		03/16/16 09:20	04/12/16 23:39	2
Cadmium	0.015	U	0.045	0.015	mg/Kg		03/16/16 09:20	04/12/16 23:39	2
Selenium	0.14	U	0.45	0.14	mg/Kg		03/16/16 09:20	04/12/16 23:39	2
Silver	0.022	U	0.18	0.022	mg/Kg		03/16/16 09:20	04/12/16 23:39	2

Lab Sample ID: LCSSRM 160-244909/2-A

Matrix: Solid

Analysis Batch: 245628

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 244909

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	139	145.5		mg/Kg		104.7	70.4 - 140.3
Barium	203	211.3		mg/Kg		104.1	73.4 - 127.1
Cadmium	96.0	106.9		mg/Kg		111.4	73.2 - 127.1
Selenium	177	190.0		mg/Kg		107.4	67.8 - 131.6
Silver	40.2	41.64		mg/Kg		103.6	66.2 - 134.1

## Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 160-245058/1-A

Matrix: Solid

Analysis Batch: 245330

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 245058

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.010	U	0.031	0.010	mg/Kg		04/11/16 09:20	04/11/16 15:50	1

Lab Sample ID: LCSSRM 160-245058/2-A

Matrix: Solid

Analysis Batch: 245330

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 245058

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	12.9	10.81		mg/Kg		83.8	51.2 - 148.1

Lab Sample ID: 160-16819-C-1-C MS

Matrix: Solid

Analysis Batch: 245330

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 245058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.089		0.796	0.930		mg/Kg	☼	106	80 - 120

TestAmerica St. Louis

May 4, 2016

## QC Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

### Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: 160-16819-C-1-D MSD

Matrix: Solid

Analysis Batch: 245330

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 245058

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.089		0.798	0.908		mg/Kg	✱	103	80 - 120	2	30

TestAmerica St. Louis

## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: F16-018 - Additional Metals

TestAmerica Job ID: 160-16369-2  
SDG: SL2125A

## Metals

## Prep Batch: 244909

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16369-1	B34PN5	Total/NA	Other Solid	3050B	
LCSSRM 160-244909/2-A	Lab Control Sample	Total/NA	Sample	3050B	
MB 160-244909/1-A	Method Blank	Total/NA	Solid	3050B	

## Prep Batch: 245058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16369-1	B34PN5	Total/NA	Other Solid	7471B	
160-16819-C-1-C MS	Matrix Spike	Total/NA	Sample	7471B	
160-16819-C-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	
LCSSRM 160-245058/2-A	Lab Control Sample	Total/NA	Solid	7471B	
MB 160-245058/1-A	Method Blank	Total/NA	Solid	7471B	

## Analysis Batch: 245330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16369-1	B34PN5	Total/NA	Other Solid	7471B	245058
160-16819-C-1-C MS	Matrix Spike	Total/NA	Sample	7471B	245058
160-16819-C-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	245058
LCSSRM 160-245058/2-A	Lab Control Sample	Total/NA	Solid	7471B	245058
MB 160-245058/1-A	Method Blank	Total/NA	Solid	7471B	245058

## Analysis Batch: 245628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-16369-1	B34PN5	Total/NA	Other Solid	6020A	244909
LCSSRM 160-244909/2-A	Lab Control Sample	Total/NA	Sample	6020A	244909
MB 160-244909/1-A	Method Blank	Total/NA	Solid	6020A	244909